



Topic 1: Regulatory Framework Under RPS

**Manny Macatangay
Senior Economist
Economists Incorporated
Direct (510) 420-5625
<http://www.ei.com>**

Discussion Points

- **Legislative Mandate**
- **Status & Prospects of Regulation Under RPS**
 - **Overview**
 - **US Experience**
 - **Hawaii Experience**
- **Comparing Hawaii to Other Jurisdictions**



Legislative Mandate

Legislative Mandate

- **Formulate an electric utility rate design that**
 - **Enables the achievement of renewable portfolio standards**
 - **Encourages investments in renewable energy facilities**
 - **Conforms to existing or alternative regulatory regimes**
 - **Provides utilities an opportunity to earn a reasonable rate of return**
- **Time frame: December 31, 2006**

End Result of All This Work

- **A document**
 - **Forming the basis of a set of rules for adoption in a future conventional rulemaking process**
 - **Providing inputs to the Commission's decisions on electric utility ratemaking**

Overview of Modeling

- **Comprehensive coverage & simultaneous analysis of issues in legislative mandate**
- **Incorporation of lessons learned on electric utility rate design**
 - **Under various RPS schemes**
 - **Under various PBR regimes**
- **Simulation of Hawaii power market using computer models**

Modeling the Legislative Mandate

- **RPS: taken as given input**
- **Investment entry: output**
- **Existing or alternative regulatory regimes: taken as a given input**
- **Electric utility rate design: output**
- **Utility financial impact: output**



Status & Prospects of Regulation Under RPS

Overview

- **Renewables electricity generation**
 - Expected to increase from 304 billion kWh in 2002 to 460 billion kWh in 2025 (1.8% growth)
 - Expected to maintain a 9% share in 2025
- **Benefits of increasing renewable energy use**
 - Supply uncertainty & price volatility of oil & traditional energy commodities
 - Pollution

Policy Trends

- **Encouragement of renewables since the 1970's oil crisis**
- **Energy efficiency**
- **RPS**

Viability of Renewables

- **Solar**
 - Nanotechnology
 - Limited contribution to the grid through 2025
- **Wind**
 - Tax credit \$0.018/kWh
 - Project financing
 - 2006 levelized cost of \$0.045/kWh to \$0.057/kWh

US Experience

- **16 States with RPS**
- **2 States with renewable goals or RPS-type legislation**
- **Quantification & pricing of externalities**

Hawaii Experience

- **2002 shares in capacity mix**
 - 80% oil
 - 9% coal
- **2002 average retail price: \$0.1339/kWh**
- **RPS goals**
 - Reduce prices
 - Contribute to energy security
 - Protect the environment



Comparing Hawaii to Other Jurisdictions

Goal of Comparisons

- **Various alternatives for renewable energy**
- **Potential, through the RPS, for encouraging investments in renewables**
- **Understand the critical factors underlying successful RPS schemes elsewhere**
- **Use this understanding as inputs to the formulation of electric utility rate designs**



Topic 1: Regulatory Framework Under RPS

Manny Macatangay
Senior Economist
Economists Incorporated
Direct (510) 420-5625
<http://www.ei.com>